

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In Re Application of:

Thomas J. Laginess et al.

Serial No. 10/686,870

Group Art Unit: 1796

Filed: October 15, 2003

Examiner: BERMAN, Susan W.

For: COATING COMPOSITION CURABLE WITH ULTRAVIOLET
RADIATION

Attorney Docket: IN-5698 (HDP 0906S-000410)

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Commissioner for Patents
P. O. Box 1450
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APPEAL BRIEF UNDER 37 C.F.R. §41.37

Sir:

This is an appeal from the Office Action mailed August 23, 2007 finally rejecting claims 1-20. A Notice of Appeal was filed on November 26, 2007 appealing all of the rejected claims. This Appeal Brief is due on January 28, 2008, as January 26, 2008 is a Saturday.

This Brief is accompanied by the fee under 37 C.F.R. §41.20(b)(2).

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I. Real Party in Interest

The real party in interest in this matter is the BASF Corporation, a corporation of the State of Delaware, to which the investors assigned all rights in this invention. The assignment was recorded in the United States Patent and Trademark Office on October 30, 2003 at reel 014649, frame 0159.

II. Related Appeals and Interferences

There are no related appeals or interferences.

III. Status of the Claims

Claims 1-20 are pending in the application and stand finally rejected. This appeal is taken as to all of the rejected claims, Claims 1-20.

IV. Status of Amendments

No amendment was filed after the final rejection.

V. Summary of Claimed Subject Matter

Two independent claims, Claim 1 and 11, are pending.

Appellants claim in independent Claim 1 a UV radiation curable primer coating composition comprising 5 to 50% by weight of one or more compounds containing one ethylenically unsaturated free-radically polymerizable group per molecule; 5 to 50% by weight of one or more compounds containing two or more ethylenically unsaturated free radically polymerizable groups per molecule; 1.0 to 60% by weight of one or more pigments, fillers and/or dyes; 0.1 to 0.49% by weight photoinitiators; 0 to 20% by weight of volatile organic solvent; and 0.1 to 10% by weight of additives. Page 3, lines 9-27 (para. 0011). The composition is curable to a non-tacky surface under only UVA radiation emitting lamp within 2 minutes and in sunlight within 5 minutes. Page 6, lines 28-34 (para. 0022). The composition is formulated to cure to a non-tacky surface which has practical advantages of being easy to use in several applications, such as automotive applications, and improving the quality of the coating. Page 2, lines 18-21 (para. 8) and page 3, lines 2-6 (para. 0010).

Claims 2-10 depend on Claim 1.

Appellants claim in independent Claim 11 claims a process for applying a primer coating composition to a substrate consisting essentially of applying a UV radiation curable

primer to a substrate; and curing the primer with a source selected from the group consisting of one or more UV lamps having a UV-B:UV-A ratio of 1:1 or less, natural outdoor light having a wavelength between 320 and 430 nm, and mixtures thereof, to obtain a tack free surface after 2-5 minutes. Page 6, lines 7-33 (paras. 0022-0024). Further, the UV radiation curable primer comprises 5 to 50% by weight of one or more compounds containing one ethylenically unsaturated free-radically polymerizable group per molecule; 5 to 50% by weight of one or more compounds containing two or more ethylenically unsaturated free radically polymerizable groups per molecule; 1.0 to 60% by weight of one or more pigments, fillers and/or dyes; 0.1 to 0.49% by weight photoinitiators; 0 to 20% by weight of volatile organic solvent; and 0.1 to 10% by weight of additives. Page 3, lines 9-27 (para. 0011).

Claims 12-20 depend on Claim 11.

VI. Grounds of Rejection to be Reviewed on Appeal

Whether Claims 1-20 are rejected as allegedly unpatentable under 35 U.S.C. 103(a) over *Fenn et al.*, U.S. Patent No. 6,838,177.

VII. Argument

A. Appellants' composition Claims 1-10 are patentable over Fenn et al., U.S. Patent No. 6,838,177 because Fenn et al. do not provide any predictable success or reason to reduce the Fenn et al. photoinitiator concentration.

The rejection fails to state a *prima facie* case of obviousness because the Fenn, et al. patent teaches coating compositions incorporating 1 to 8% or more of photoinitiator and curing the coated article with combinations of UVA and UVB radiation would not provide any predictable success or provide any reason for a skilled practitioner to reduce the photoinitiator concentration to half or less of the mandated range of Fenn et al. and to formulate the composition for optimal use with only natural light or only UVA radiation.

The Fenn et al. patent teaches coating compositions incorporating from 1 to 8% or more of photoinitiator. Column 3, line 3; column 4, lines 43-44. The Fenn et al. patent discloses, "preferably the primer contains 1-3% by weight of component D (photoinitiator)." Column 4, lines 43-44. While the Fenn et al. patent teaches reducing the upper limit of the photoinitiator range, the Fenn et al. patent does not teach that any amount of photoinitiator below the 1% minimum would be successful in its coating composition. The Federal Circuit stated that a combination of elements "must do more than yield a predictable result," and

went on to state that combining elements that work together “in an unexpected and fruitful manner” is not obvious. *KSR Int’l Co. v. Teleflex, Inc.*, 127 S.Ct. 1727, 1740, 82 USPQ2d 1385, 1397 (2007). Hence, the rejection fails.

The Fenn et al. coating compositions are formulated to be cured with various combinations of UVA and UVB radiation. Column 4, lines 34-42. Fenn et al. further teach curing the coating compositions using various UV lamps emitting UVA and UVB radiation. Fenn et al. state, “[t]he primer composition is cured by exposure to UV radiation The ratio of UV-B content to UV-A content of the radiation is 1:1 or less The radiation has substantially no UV-C content The radiation may be provided by any suitable UV lamp and preferably the lamp(s) are positioned away from the surface of the primer.” Column 5, lines 13-29; and Examples at column 6, line 1 to column 11, line 18. Fenn et al. do not provide any disclosure or teaching about how to formulate the coating compositions for curing using a natural light source or an artificial radiation source emitting only UVA radiation. Appellants further point out that, in addition to not disclosing coating compositions formulated for curing using natural sunlight, the Fenn et al. teaching regarding no UVC radiation teaches away from using natural sunlight because natural sunlight includes UVA, UVB, and UVC radiation. A “corollary principle” of patent law is “that when prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious.” *KSR Intl Co. v. Teleflex, Inc.*, 127 S.Ct. 1727, 1739, 82 USPQ2d 1385, 1395 (2007), internal citations omitted.

As Fenn et al. fail to teach reducing the concentration of photoinitiator in the composition and further teaches formulating the composition for use with only artificial and/or non-UVC radiation for the curing, Fenn et al. do not provide any predictable success or reason for the skilled practitioner to make the present coating composition inventions by the teachings of Fenn et al.

Appellants optimize the coating composition formulation with the reduced photoinitiator in the amount of “0.1 to 0.49% by weight photoinitiators” of the composition and the formulation results in a coating composition which is “curable to a non-tacky surface under only UVA radiation emitting lamp within 2 minutes and in sunlight within 5 minutes.” Claim 1. The resultant synergy between Appellants coating formulation, the amount of photoinitiator in the coating formulation, and the selected radiation sources cannot be

gleaned from reviewing Fenn et al. Such an interpretation is impermissible hindsight which must be avoided by the Examiner. MPEP 2141.01(III); “It is difficult but necessary that the decision maker forget what he or she has been taught . . . about the claimed invention and cast the mind back to the time the invention was made (often as here many years), to occupy the mind of one skilled in the art . . .” *W.L.Gore & Associates, Inc. v. Garlock, Inc.*, 220 USPQ 303, 313 (Fed. Cir. 1983), *cert denied*, 469 U.S. 851 (1984).

For these reasons, Appellants respectfully submit that claims 1-10 are patentable over the cited reference and request this Honorable Board to REVERSE the rejection over Fenn et al., U.S. Patent No. 6,838,177.

B. Appellants’ process Claims 11-20 are patentable over Fenn et al., U.S. Patent No. 6,838,177 because the Fenn et al. composition, methods, related disclosure, and the art do not provide reason to modify the Fenn et al. methods.

The rejection fails to state a *prima facie* case of obviousness because the methods disclosed in Fenn et al. regarding curing a coating composition having 1 to 8% photoinitiator concentration do not teach or suggest every limitation of Appellants’ invention. Further, the methods of Fenn et al. would not be modified by a skilled practitioner to reduce the photoinitiator concentration and change the radiation sources and times.

As discussed above, Fenn et al. fail to suggest reducing the amount of photoinitiator below the lowest end point of 1%. Further, as discussed above, Fenn et al. fail to suggest using only natural sunlight or a UVA source of radiation to cure the coating composition.

The methods suggested by Fenn et al. are limited to radiation exposure treatments varying the ratio of UVA to UVB radiation from an artificial source and are limited to use with compositions having a photoinitiator composition of 1 to 8% by weight. Fenn et al. do not provide any reason or suggestion to ignore the presence of UVC in sunlight and incorporate curing with sunlight into the Fenn et al. methods.

For these reasons, Appellants respectfully submit that claims 1-10 are patentable over the cited reference and request this Honorable Board to REVERSE the rejection over Fenn et al., U.S. Patent No. 6,838,177.

VIII. Claims Appendix

A copy of each of the claims involved in this appeal, namely claims 1-20 is attached as a Claims Appendix.

IX. Evidence Appendix

None.

X. Related Proceedings Appendix

None.

XI. Conclusion

The present claims are patentable over the cited art. Appellants, therefore, respectfully petition this Honorable Board to reverse the final rejection of the claims on each ground and to indicate that all claims are allowable.

Please charge any fees required in the filing of this appeal to Deposit Account 23-3425.

Respectfully submitted,

Dated: January 28, 2008

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CLAIMS APPENDIX

1. A UV radiation curable primer coating composition comprising:
 - a. 5 to 50 % by weight of one or more compounds containing one ethylenically unsaturated free-radically polymerizable group per molecule;
 - b. 5 to 50% by weight of one or more compounds containing two or more ethylenically unsaturated free radically polymerizable groups per molecule;
 - c. 1.0 to 60% by weight of one or more pigments, fillers and/or dyes;
 - d. 0.1 to 0.49% by weight photoinitiators;
 - e. 0 to 20% by weight of volatile organic solvent; and
 - f. 0.1 to 10% by weight of additives,wherein said coating is curable to a non-tacky surface under only UVA radiation emitting lamp within 2 minutes and in sunlight within 5 minutes.
2. A primer coating composition according to claim 1 wherein the compound (a) is selected from the group consisting of 1-octene, 1-hexene, 1-decene, vinyl acetate, styrene, alpha-methylstyrene, p-methylstyrene, esters of methacrylic acid, esters of acrylic acid and mixtures thereof.
3. A primer coating according to claim 1 wherein compound (a) is selected from the group consisting of butyl acrylate, t-butyl acrylate, isobornyl acrylate, isodecyl acrylate, 2-ethylhexyl acrylate, lauryl acrylate, cyclohexyl acrylate, octyl acrylate and mixtures thereof.
4. A primer coating composition according to claim 1 wherein compound b is selected from the group consisting of urethane diacrylates, urethane triacrylates, tetra-functional urethane acrylates, hexa-functional urethane acrylates and mixtures thereof.
5. A primer coating according to claim 1 wherein compound b is selected from the group consisting of hexanediol diacrylate, tripropyleneglycol diacrylate, trimethylolpropane triacrylate, alkoxylated trimethylolpropane triacrylate,

pentaerythritol triacrylate, pentaerythritol tetraacrylate, dipentaerythritol hexaacrylate, unsaturated polyesters, and mixtures thereof.

6. A primer coating according to claim 1 wherein compound b is selected from the group consisting of di-functional, tetra-functional and hexa-functional urethane acrylates and mixtures thereof.
7. A primer coating composition according to claim 1 wherein the pigment to binder ratio is between 0.8 and 2.0.
8. A primer coating composition according to claim 1 wherein the pigment to binder ratio is between 1.2 and 1.8.
9. A primer coating composition according to claim 1 wherein the photoinitiator comprises a compound selected from the group consisting of acyl phosphine oxides and benzyl ketals.
10. A primer coating composition according to claim 1 wherein said coating is cured to a tack free surface by 5 minute exposure to outdoor light having an intensity of 45-65 mJoules/cm² and demonstrates 95% post humidity test adhesion.
11. A process for applying a primer coating composition to a substrate consisting essentially of:
 - A. applying a UV radiation curable primer to a substrate; and
 - B. curing the primer with a source selected from the group consisting of one or more UV lamps having a UV-B:UV-A ratio of 1:1 or less, natural outdoor light having a wavelength between 320 and 430 nm, and mixtures thereof, to obtain a tack free surface after 2-5 minutes,wherein the UV radiation curable primer comprises:
 - a. 5 to 50 % by weight of one or more compounds containing one ethylenically unsaturated free-radically polymerizable group per molecule;

- b. 5 to 50% by weight of one or more compounds containing two or more ethylenically unsaturated free radically polymerizable groups per molecule;
 - c. 1.0 to 60% by weight of one or more pigments, fillers and/or dyes;
 - d. 0.1 to 0.49% by weight photoinitiators;
 - e. 0 to 20% by weight of volatile organic solvent; and
 - f. 0.1 to 10% by weight of additives.
12. A process according to claim 11 wherein the coating applied comprises compound (a) selected from the group consisting of 1-octene, 1-hexene, 1-decene, vinyl acetate, styrene, alpha-methylstyrene, p-methylstyrene, esters of methacrylic acid, esters of acrylic acid and mixtures thereof.
13. A process according to claim 11 wherein the coating applied comprises compound (a) selected from butyl acrylate, t-butyl acrylate, isobornyl acrylate, isodecyl acrylate, 2-ethylhexyl acrylate, lauryl acrylate, cyclohexyl acrylate, octyl acrylate and mixtures thereof.
14. A process according to claim 11 wherein the coating applied comprises compound (b) selected from the group consisting of urethane diacrylates, tri-functional urethane acrylates, tetrafunctional urethane acrylates, hexa-functional urethane acrylates and mixtures thereof.
15. A process according to claim 11 wherein the coating applied comprises a pigment to binder ratio between 0.8 and 2.0.
16. A process according to claim 11 wherein the coating applied comprises a pigment to binder ratio between 1.2 and 1.8.
17. A process according to claim 11 wherein a UV light source is applied wherein the UVA intensity is from 0.8 to 1.6 Joules/cm², and the UVB intensity is from .001 to 0.5 Joules/cm².

18. A process according to claim 11 wherein the coating is cured under natural light conditions, said light providing an intensity of 5-100 mJoules/ cm².
19. A process according to claim 11 wherein the substrate to which the coating is applied to a substrate comprising an automotive vehicle.
20. A process according to claim 11 wherein the coating process comprises application of the primer coating in the repair of an automotive vehicle.

IX. Evidence Appendix

None.

X. Related Proceedings Appendix

None.